AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A robot for a production machine, comprising:

a rotation drive unit disposed on a support base;

a first arm, a proximal end portion of the first arm being fixed to a rotary shaft of the rotation drive unit;

a first proximal-side pulley disposed coaxially with the rotary shaft and fixed to the support base;

a second proximal-side pulley fixed to a distal end portion of the first arm;

an intermediate shaft rotatably supported on the distal end portion of the first arm, the intermediate shaft penetrating a center portion of the second proximal-side pulley;

a first distal-side pulley provided integrally with the intermediate shaft;

a first rotation transmission section for drivingly connecting the first distal-side pulley and the first proximal-side pulley;

a second arm, a proximal end portion of the second arm being fixed to the intermediate shaft;

a distal-side shaft rotatably supported on a distal end portion of the second arm;

a second distal-side pulley provided integrally with the distal-side shaft;

a second rotation transmission section for drivingly connecting the second distal-side pulley and the second proximal-side pulley;

a chuck fixed to the distal-side shaft, wherein the second arm rotates over an angle twice that over which the first arm rotates, and the chuck rotates over an angle one-half that over which the second arm rotates so that the chuck assumes a constant orientation and passes over the first proximal-side pulley when the rotation drive unit is operated, and tooth-number ratio between the first proximal-side pulley and the first distal-side pulley is set to n:1, and the tooth-number ratio between the second proximal-side pulley and the second distal-side pulley is set to 1:m, and

when the first arm and the second arm are extended to position the chuck at a center of the production machine, substantially an entire length of the second arm extends between tie bars of the production machine and, so that the second arm is substantially

~~entirely~~ overlapped between a movable mold and a stationary mold of the production machine.

2. (Original) A robot for a production machine according to claim 1, wherein the tooth-number ratio between the first proximal-side pulley and the first distal-side pulley is set to 2:1.

3. (Original) A robot for a production machine according to claim 1, wherein the tooth-number ratio between the second proximal-side pulley and the second distal-side pulley is set to 1:2.

4. (Original) A robot for a production machine according to claim 1, wherein the distance between the center of the second proximal-side pulley and the center of the second distal-side pulley is set to be equal to the distance between the center of the first proximal-side pulley and the center of the first distal-side pulley.

5. (Original) A robot for a production machine according to claim 1, wherein the support base is disposed on a bed of an injection molding machine; and the chuck is moved through a space between the upper and lower tie bars.

6. (Original) A robot for a production machine according to claim 5, wherein the support base is supported by a movement mechanism for effecting movement in the front/back direction of the injection molding machine.

7. (Original) A robot for a production machine according to claim 1, wherein a rotation mechanism is disposed at the upper end of an injection molding machine, the rotation mechanism including a horizontal arm whose one end is supported to be rotatable about an axis extending in the vertical direction; the support base is attached to the other end of the horizontal arm; and the chuck is moved through a space between tie bars disposed at two different positions in the transverse direction of the injection molding machine.

8. (Canceled)

9. (Currently Amended) A robot for a production machine, comprising:

a rotation drive unit disposed on a support base;

a first arm, a proximal end portion of the first arm being fixed to a rotary shaft of the rotation drive unit;

a first proximal-side pulley disposed coaxially with the rotary shaft and fixed to the support base;

a second proximal-side pulley fixed to a distal end portion of the first arm;

an intermediate shaft rotatably supported on the distal end portion of the first arm, the intermediate shaft penetrating a center portion of the second proximal-side pulley;

a first distal-side pulley provided integrally with the intermediate shaft;

a first rotation transmission section for drivingly connecting the first distal-side pulley and the first proximal-side pulley;

a second arm, a proximal end portion of the second arm being fixed to the intermediate shaft;

a distal-side shaft rotatably supported on a distal end portion of the second arm;

a second distal-side pulley provided integrally with the distal-side shaft;

a second rotation transmission section for drivingly connecting the second distal-side pulley and the second proximal-side pulley; and

a chuck fixed to the distal-side shaft, wherein:

the second arm rotates over an angle twice that over which the first arm rotates, and the chuck rotates over an angle one-half that over which the second arm rotates so that the chuck assumes a constant orientation and passes over the first proximal-side pulley when the rotation drive unit is operated,

the tooth-number ratio between the first proximal-side pulley and the first distal-side pulley is set to n:1, the tooth-number ratio between the second proximal-side pulley and the second distal-side pulley is set to 1:m, and the distance between the center of the second proximal-side pulley and the center of the second distal-side pulley is set to be equal to the distance between the center of the first proximal-side pulley and the center of the first distal-side pulley,

the support base is disposed on a bed of an injection molding machine, and the chuck is moved through a space between the upper and lower tie bars, and

when the first arm and the second arm are extended to position the chuck at a center of the production machine, substantially an entire length of the second arm extends

between tie bars of the production machine, so that the length of the second arm is substantially ~~entirely~~ overlapped between a movable mold and a stationary mold of the production machine.

10. (Previously Presented) A robot for a production machine according to claim **9**, wherein the tooth-number ratio between the first proximal-side pulley and the first distal-side pulley is set to 2:1.

11. (Previously Presented) A robot for a production machine according to claim **9**, wherein the tooth-number ratio between the second proximal-side pulley and the second distal-side pulley is set to 1:2.

12. (Previously Presented) A robot for a production machine according to claim **9**, wherein the support base is supported by a movement mechanism for effecting movement in the front/back direction of the injection molding machine.

13. (Currently Amended) A robot for a production machine, comprising:

a rotation drive unit disposed on a support base;

a first arm, a proximal end portion of the first arm being fixed to a rotary shaft of the rotation drive unit;

a first proximal-side pulley disposed coaxially with the rotary shaft and fixed to the support base;

a second proximal-side pulley fixed to a distal end portion of the first arm;

an intermediate shaft rotatably supported on the distal end portion of the first arm, the intermediate shaft penetrating a center portion of the second proximal-side pulley;

a first distal-side pulley provided integrally with the intermediate shaft;

a first rotation transmission section for drivingly connecting the first distal-side pulley and the first proximal-side pulley;

a second arm, a proximal end portion of the second arm being fixed to the intermediate shaft;

a distal-side shaft rotatably supported on a distal end portion of the second arm;

a second distal-side pulley provided integrally with the distal-side shaft;

a second rotation transmission section for drivingly connecting the second distal-side pulley and the second proximal-side pulley; and

a chuck fixed to the distal-side shaft, wherein:

the second arm rotates over an angle twice that over which the first arm rotates, and the chuck rotates over an angle one-half that over which the second arm rotates so that the chuck assumes a constant orientation and passes over the first proximal-side pulley when the rotation drive unit is operated,

the tooth-number ratio between the first proximal-side pulley and the first distal-side pulley is set to n:1, the tooth-number ratio between the second proximal-side pulley and the second distal-side pulley is set to 1:m;

a rotation mechanism is disposed at an upper end of an injection molding machine, the rotation mechanism including a horizontal arm whose one end is supported to be rotatable about an axis extending in the vertical direction ~~and in a position above tie bars of the injection molding machine~~, the support base being attached to the other end of the horizontal arm, and the second arm and the chuck being moved through a space between the tie bars

disposed at two different positions in the transverse direction of the injection molding machine; and

the rotation mechanism is supported by a movement mechanism for effecting movement in the front/back direction of the injection molding machine.

14. (Previously Presented) A robot for a production machine according to claim **7**, wherein the chuck faces a molded product in an approach position, wherein the first arm and the second arm extend along a vertical direction.

15. (Previously Presented) A robot for a production machine according to claim **14**, wherein when the chuck has reached an elevated position, the rotation mechanism rotates the horizontal arm to move the product removal apparatus to a retreated position, and the rotation drive unit rotates the first arm so that the chuck moves downward along the vertical direction.